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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,688	01/24/2002	Eric Gregory Oettinger	TI-33552	1034
23494	7590	05/17/2005	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			BELLO, AGUSTIN	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,688

Applicant(s)

OETTINGER ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11 and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Gfeller (U.S. Patent No. 4,402,090).

Regarding claim 1, Gfeller teaches receiving a light beam at the photodetector (reference numeral 48 in Figure 7), demodulating data carried on the received light beam (reference numeral 49 in Figure 7); parsing the demodulated data (reference numeral 53 in Figure 7); determining an origin of the demodulated data based on the parse (reference numeral 51 in Figure 7); and permitting signal lock if the origin of the received light beam is different from the optical wireless link containing the photodetector (column 6 line 64 – column 7 line 25).

Regarding claim 2, Gfeller teaches the step of appending a unique identifier to data being transmitted on the light beam prior to transmission (e.g. “Origin Address” of column 4 lines 1-11).

Regarding claim 3, Gfeller teaches that the unique identifier is a network address of the optical wireless link transmitting the data (e.g. “Origin Address” of column 4 lines 1-11).

Regarding claim 4, Gfeller teaches that the network address is unique to the optical wireless link (inherent).

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Regarding claim 5, Gfeller teaches that the unique identifier is a uniquely calculated data value that is ensured of being unique to the optical wireless link transmitting the data (inherent).

Regarding claim 6, Gfeller teaches that the parsing step comprises searching for the presence of the unique identifier in the demodulated data (reference numeral 51, 53 in Figure 7).

Regarding claim 7, Gfeller teaches that the determining step comprises: finding that the origin is different from the receiving optical wireless link if the unique identifier is absent from the demodulated data (e.g. if the unique identifier is absent, then comparator 69 in Figure 7 will not produce a match); and finding that the origin is the same as the receiving optical wireless link if the unique identifier is present in the demodulated data (e.g. if the unique identifier is present, then comparator 69 in Figure 7 will produce a match when they are the same).

Regarding claim 8, Gfeller teaches the step of monitoring data transmitted on the light beam prior to transmission (reference numeral 29 in Figure 7).

Regarding claim 9, Gfeller teaches that the parsing step comprises comparing the demodulated data with the monitored data (reference numeral 69 in Figure 7).

Regarding claim 10, Gfeller teaches that finding that the origin is different from the receiving optical wireless link if the demodulated data and the monitored data are different (e.g. do not match reference numeral 79 in Figure 7); and finding that the origin is the same as the receiving optical wireless link if the demodulated data and the monitored data are the same (e.g. do match reference numeral 79 in Figure 7).

Regarding claim 11, Gfeller teaches the step of ignoring the received light beam (e.g. no output from buffer 55 in Figure 7) if the origin of the demodulated data was the same as receiving optical wireless link, subsequent to the determining step.

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Regarding claim 13, Gfeller teaches a light beam transmitter (reference numeral 19 in Figure 7) configured to transmit a first light beam; a photodetector (reference numeral 48 in Figure 7) configured to receive a second light beam; and a processing element (reference numeral 23, 51, 53, 65, 67, 69 in Figure 7) coupled to the light beam transmitter and the photodetector, the processing element containing circuitry to detect the origin of data received on the second light beam.

Regarding claim 14, 17, Gfeller teaches a reflection detection unit (reference numeral 51 in Figure 7) coupled to the photodetector, the reflection detection unit containing circuitry to detect the origin of the data received on the second light beam; and a memory (reference numeral 65 in Figure 7) coupled to the reflection detection unit, the memory to store the received data.

Regarding claim 15, Gfeller teaches that the memory (reference numeral 65 in Figure 7) further stores a unique identifier used to detect the origin of the received data.

Regarding claim 16, Gfeller teaches that the memory further stores monitored data (reference numeral 67 in Figure 7) from transmissions originating from the optical wireless link.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Gfeller in view of Wissinger (U.S. Patent No. 5,592,320).

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Regarding claim 12, Gfeller differs from the claimed invention in that Gfeller fails to specifically teach retrieving positional data from the demodulated data; transmitting the positional data on a second light beam; and aligning the light transmitter to the positional data received from the demodulated data. However, Wissinger, in the same field of satellite communication, teaches that this concept is well known in the art (see abstract of Wissinger). One skilled in the art would have been motivated to retrieve positional data from the demodulated data; transmit the positional data on a second light beam; and align the light transmitter to the positional data received from the demodulated data in order to improve acquisition and tracking of optical beams communication between two satellites. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to retrieve positional data from the demodulated data; transmit the positional data on a second light beam; and align the light transmitter to the positional data received from the demodulated data in order to improve acquisition and tracking of optical beams communication between two satellites.

Regarding claim 18, Gfeller differs from the claimed invention in that Gfeller fails to specifically teach that the first light beam is steered by a controllable mirror. However, Wissinger, in the same field of satellite communication, teaches that this concept is well known in the art (e.g. "gimbal mirror" throughout Wissinger). One skilled in the art would have been motivated to include a controllable mirror in the device of Gfeller in order to generate a predetermined scan pattern. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include a controllable mirror as taught by Wissinger in the device of Gfeller.

5. Claims 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wissinger.

Regarding claim 19, Wissinger teaches a method of communicating between two data devices comprising: coupling a first data device (e.g. "HOST" inherently input to reference numeral 44 in Figure 2) to a first optical wireless link (reference numeral 10 in Figure 2); coupling a second data device to a second optical wireless link (inherent in that satellite to satellite communication is achieved column 1 lines 8-10); aligning the first and second optical wireless links (column 3 lines 6-10), the aligning step including: modulating a first light beam with first position information (column 2 lines 14-17) and sweeping the first light beam through a pre-defined acquisition pattern (column 2 lines 23-25), sweeping the second light beam through a pre-defined acquisition pattern (column 2 lines 29-31), detecting the second light beam at the first optical wireless device (column 2 lines 31-34), determining the origin of the first light beam (e.g. a indicated by received position data), detecting the first light beam at the second optical wireless device (column 2 lines 25-27), determining the origin of the first light beam (e.g. a indicated by received position data), echoing the first position information back to the first optical wireless device via the second light beam (column 6 lines 58-62); aligning the first light beam to a position indicated by the second echoing step (column 4 lines 5-10); and aligning the first light beam to a position indicated by the second echoing step (column 4 lines 5-10); and communicating data between the first and second data devices over the first and second light beams, subsequent to the aligning step (column 4 lines 17-20 and column 5 lines 50-53).

Wissinger differs from the claimed invention in that Wissinger fails to specifically teach modulating a second light beam with second position information and echoing the second position information back to the second optical wireless device via the first light beam.

However, Wissinger teaches that both first and second optical wireless links perform the

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scanning operation (e.g. “each of the LCT transmitters” of column 3 lines 30-33, column 2 lines 11-14), thereby suggesting that the second optical wireless link is capable of the same functions as the first optical wireless link. Considering that “LCT A” and “LCT B” of Wissinger do not know each other’s positions at start-up (column 3 lines 28-29), one skilled in the art would clearly have recognized that it would have been beneficial to allow the second optical wireless link of Wissinger - like the first optical wireless link - to also modulate its output beam with a signal indicative of the position of its scanning light beam, thereby transmitting position data for the second light beam. Likewise, one skilled in the art would clearly have recognized that it would also have been beneficial to extend the echoing function to the first optical wireless link. One skilled in the art would have been motivated to do so in order to expedite acquisition (a need noted by Wissinger column 1 lines 39-47) and to further facilitate accurate tracking and alignment (column 6 lines 54-55). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to design the second optical wireless link like the first optical wireless link so that the second light beam transmits position data for the second light beam, thereby expediting acquisition and the accuracy of tracking and alignment.

Regarding claim 20, Wissinger differs from the claimed invention in that Wissinger fails to specifically teach (c1) repeating steps (a)-(c) if the origin of the first light beam is the second optical wireless device, and (f1) repeating steps (d)-(f) if the origin of the second light beam is the first optical wireless device. However, reiteration of the steps already provided by Wissinger would have been obvious to one skilled in the art if the alignment between the first and second link were not achieved. One skilled in the art would clearly have recognized that a misalignment had occurred if the origin of the first light beam was the first link when the origin

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was expected to be the second data link. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to reiterate the steps already provided by Wissinger in order to achieve alignment between the two links.

Regarding claim 21, Wissinger teaches transmitting data from the first data device in an electrical format (e.g. "DATA FROM HOST" passed to "LASER MODULATOR" in Figure 2) and converting it to an optical format (e.g. via "LASER DIODE" 26 in Figure 2) prior to the communicating step (e.g. prior to transmission over free-space).

Regarding claims 22 and 23, Wissinger differs from the claimed invention in that Wissinger fails to specifically teach that the coupling between the data devices and the optical wireless links are RF wireless. However, RF wireless communication is very well known in the art and Official Notice is taken that RF wireless transmission of data is well known in the art. One skilled in the art would have been motivated to employ RF wireless data transmission in order to reduce the overall weight of the satellite. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ RF wireless data transmission in the device of Wissinger.

6. Claims 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wissinger in view of Gfeller.

Regarding claims 24 and 25, Wissinger fails to specifically teach the limitations of these claims. However, as discussed in the rejection of claims 7 and 10, Gfeller teaches the limitations. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include the comparison steps taught by Gfeller in the device of Wissinger.

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Regarding claim 26-28, the combination of references teaches a computer, network, and a modem (see Gfeller).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB


AGUSTIN BELLO
PATENT EXAMINER
05/13/05